

Claims

- [c1] 1. In a latch assembly formed of a bolt housing, a longitudinally elongated latch bar partially retained within a passageway of the bolt housing and longitudinally extendable therefrom, and a keeper having a reception passage for receiving an extending free end of the latch bar; wherein the free end of the latch bar is extendable from the bolt housing into the keeper, thereby establishing a latching relationship with the keeper, the improvement comprising:
- the free end of said latch bar is configured with a cavity on a lateral face thereof;
- said keeper carries a cross-latch in a transversely moveable relationship with respect to said reception passage, between positions of greater and lesser intersection with the reception passage;
- resilient means biases movement of said cross-latch toward a position of greater intersection with the reception passage; and
- an operator is connected to the cross-latch for selectively retracting the cross-latch against the force of said resilient means to a position of lesser intersection with the reception passage;

wherein said cavity and cross-latch are suitably arranged such that the cross-latch and cavity are mutually engaged when the cross-latch is in said position of greater intersection with the reception passage and the free end of the latch bar has been sufficiently inserted into the reception passage, thereby locking the latch bar to the keeper; and

the cross-latch and cavity are mutually disengaged when the cross-latch is in said position of lesser intersection with the reception passage, allowing the latch bar to be inserted into or removed from the reception passage.

[c2] 2. In the latch assembly of claim 1, the further improvement comprising:

said latch bar is forked from the free end of the latch bar to a junction with said cavity, thereby defining a longitudinal slot extending from the free end of the latch bar and leading into the bolt cavity;

the cavity is a transverse passage through the latch bar, of a dimension wider than the width of said slot at its junction with the cavity;

said cross-latch is sized to be retained from exiting the cavity into the slot when the cross-latch and cavity are mutually engaged;

said operator traverses the reception passage when the cross-latch is in said position of lesser intersection; and

the operator and the slot are relatively sized such that the operator can be received through the slot and into the cavity;

whereby, when the cross latch is in said position of lesser intersection with the reception passage, the latch bar is able to enter the reception passage, receive the operator through the slot, and receive the operator into the cavity.

[c3] 3. In the latch assembly of claim 2, the further improvement comprising:
a stop, operating between said keeper and said latch bar, limits entry of the latch bar into the reception passage to a position where said cavity is aligned to receive said cross-latch, when the cross-latch is in said position of lesser intersection with the reception passage.

[c4] 4. In the latch assembly of claim 3, the further improvement comprising:
said latch bar is configured as a plate of rectangular transverse profile; and
said reception passage is configured with a matching rectangular profile for receiving the latch bar, such that the latch bar is substantially non-rotatable with respect to the reception passage and relative movement between the latch bar and the reception passage is substantially along a single longitudinal axis;

whereby, moving the latch bar along a single longitudinal axis establishes alignment between the cavity with the cross-latch.

- [c5] 5. In the latch assembly of claim 4, the further improvement comprising:
- said latch bar carries a longitudinal rib of predetermined height on a major face thereof;
 - a matching channel in said keeper extends parallel to said reception passage and receives said rib;
 - the rib terminates at an edge of said cavity, longitudinally opposite from said slot; and
 - in said position of lesser intersection with the reception passage, said cross-latch is interposed in said keeper channel such that the rib strikes a side of the cross-latch longitudinally opposite from said slot when the cross-latch and cavity are aligned for the cross-latch to enter the cavity.

- [c6] 6. In the latch assembly of claim 4, the further improvement comprising:
- said bolt housing passageway is configured with a rectangular profile suitable to carry said latch bar in slidable relationship;
 - the latch bar carries a longitudinal rib of predetermined height on a major face thereof;
 - a matching channel in said bolt housing extends parallel

to the bolt housing passageway and receives said rib;
said bolt housing channel includes a bolt housing channel base wall facing the rib and spaced from the bolt housing passageway by a greater dimension than said predetermined height of the rib;
whereby the latch bar is guided in said bolt housing on a major face in contact with the bolt housing passageway, suspending the rib at a gap from said bolt housing channel base.

[c7] 7. In the latch assembly of claim 6, the further improvement comprising:
said rib carries a first stop extending from the rib toward said bolt housing channel base; and
said bolt housing channel carries a second stop in an interfering position with respect to said first stop;
whereby the first and second stops prevent said latch bar from exiting said bolt housing in at least a first longitudinal direction of movement.

[c8] 8. In the latch assembly of claim 1, the further improvement comprising:
said keeper defines a bore arranged on a transverse axis to said longitudinal reception passage, wherein the bore is of dual width, having a relatively greater width on one side of the longitudinal reception passage and having a relatively lesser width on the opposite side of the longi-

tudinal reception passage;

said cross-latch comprises a plunger head of width similar to the greater bore width, carried in said portion of the bore of greater width; and

said operator comprises a shaft of width similar to the lesser bore width, carried in said portion of the bore of lesser width.

[c9] 9. A child-resistant latch assembly for securing a closure element, comprising:

a longitudinally elongated latch bolt having a transverse reception cavity formed in a side of said latch bolt;

a bolt housing defining a longitudinal latch bolt passageway, carrying the latch bolt in said latch bolt passageway for sliding movement, such that an end of the bolt is extendable from the bolt housing to latch a closure;

a keeper defining a longitudinal reception passage, alignable with the latch bolt passageway of the bolt housing for selectively receiving said extended end of the latch bolt in a predetermined relative position with respect to the keeper;

a cross-latch resiliently carried by said keeper such that said cross-latch can move transversely with respect to said longitudinal reception passage, into and out of intersection with the reception passage;

wherein, when the latch bolt is in said predetermined relative position with respect to the keeper, the cross-latch selectively engages and disengages the transverse reception cavity in the latch bolt, respectively selectively locking and unlocking the latch bolt with respect to the keeper.

- [c10] 10. The latch assembly of claim 9, wherein:
- said cross-latch comprises a plunger having a relatively broader head connected to a relatively narrower shank;
 - a resilient means biases said plunger into a position wherein said plunger head at least partially enters said longitudinal reception passage into a position of interference with longitudinal movement of the latch bolt in the longitudinal reception passage, and said shank extends from the keeper sufficiently to enable manual manipulation of the shank to displace the plunger head from said position of interference with movement of the latch bolt;
 - said extendable end of the latch bolt is forked and defines a longitudinal entranceway sized to pass the shank and block the plunger head; and
 - the shank and plunger head are interconnected and carried in the keeper with respect to said resilient means such that the shank crosses the said longitudinal reception passage in a position receivable in said entranceway

when the shank has displaced the plunger head from the position of interference with movement of the latch bolt.